Research Note 85-16

TACTICAL ENGAGEMENT SIMULATION TRAINING: ONE STATION UNIT TRAINING

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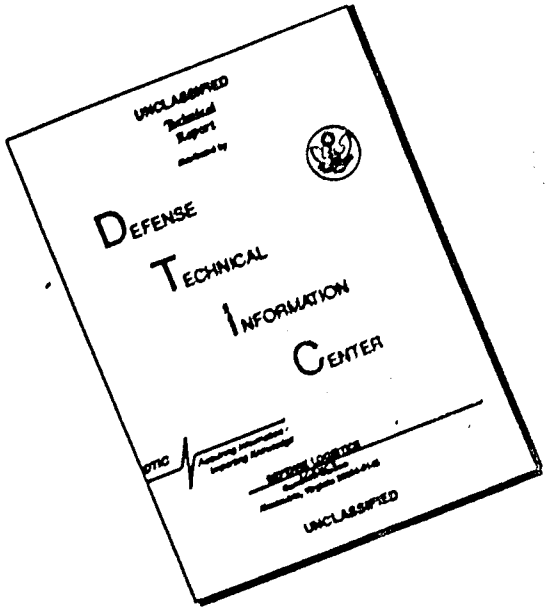

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(MILES) engagement training equipment was used to provide a period of simulated target engagement training to one station unit training (OSUT), soldiers after the standard TOW training program. While hit performance was not a primary objective of the period, exposure to actual target vehicles under field engagement conditions was. The attitudes of the soldiers and cadre were recorded and summarized for use by the OSUT command elements. This note describes and reports the preliminary observations and soldier comments.

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TACTICAL ENGAGEMENT SIMULATION TRAINING ONE STATION
UNIT TRAINING (OSUT)

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TACTICAL ENGAGEMENT SIMULATION TRAINING
ONE STATION UNIT TRAINING (OSUT)

INTRODUCTION

In late May 1983, the US Army Research Institute Fort Benning Field Unit (ARI-Benning) was asked through the Directorate of Training Development(DOTD), US Army Infantry School (USAIS), to observe and review a period of tactical engagement simulation training for the TOW gunnery course. The Infantry Training Group (ITG) had earlier adapted the use of the Multiple Integrated Laser Engagement System (MILES) to the TOW gunnery training in One Station Unit Training (OSUT) in order to expose the soldiers to simulated targets which were evasive. The individual soldier's assigned task as a gunner using MILES was to engage an M113 vehicle equiped with MILES receptors while firing from a tactical position similar to one which would typically be used in field and combat settings. The concept and intent of tactical engagement simulation training was to inexpensively add a more realistic target engagement dimension to training using available time at the completion of the prescribed program of instruction.

PURPOSE

The purpose for the observation and evaluation request from the Commander ITG, to the DOTD, USAIS, was to provide an additional dimension to some internal evaluation activities which were taking place with regard to the training.

BACKGROUND

The MILES target engagement simulation training was established initially at the request of the then Commander of the US Army Infantry Center. The concept of the instruction was to provide fast tracking experience as part of TOW training. Comments resulting from observations by the USAIC Commanding General suggested that faster target vehicles might be needed. In a series of field trials using the Bradley Infantry Fighting Vehicle, high speed tracking tests were conducted by ITG. The tests showed that Lee Field terrain, where current OSUT TOW training takes place, restricted the attainable top speed of the Bradley to 30 MPH. The Bradley suffered from mechanical problems during the testing which developed from the strain of sustained rapid directional changes that the unique training environment demanded. It was determined that the road surface could not sustain long use under the conditions created during testing, and which would be typical to training, without major engineering improvements. Such improvements would prove costly, as would the continued use of the Bradley Fighting Vehicle. At issue was the conflict between the intent of the block of instruction and the expense of developing and using a much more complete tactical training scenario as a part of the TOW gunner training program. At some point such a program improvement may be considered not only ideal, but necessary. However, the resources are not available to undertake such a step in program development at present. The concern of the ITG Commander and TOW gunnery training staff has been the relative value of the present block of instruction and whether it represents a true contribution to the students' training. The observations conducted by ARI-Benning have been intended to address these command concerns.

OBSERVATIONS

MILES equipment in its present configuration is intended to support unit level tactical exercises by adding the opportunity for target kills during two sided engagements. The current equipment does not provide true marksmanship level accuracy for realistic gunnery task portrayals during such engagements. The probability of hitting a target under tactical conditions with MILES is below that which may be attained during standard gunnery training exercises. It should be understood that in the future the capability to use MILES as at accurate marksmanship training system may very well be added to the requirements for any additional procurement.

Observations of the tactical engagement simulation instruction conducted at Lee Field revealed that the MILES equipment did not register many hits on target as was to be expected. The students had been told that the equipment used for the block of training had not been designed to support the training of initial gunnery skills and that its true application was related to unit field exercises. The purpose given for the use of MILES supported tactical engagements was to provide exposure to tactical targets moving freely about the battlefield and to add some sense of realism to the TOW training. The students were told that the results of the engagements would not be representative of their ability to actually hit an enemy target but that they would be able to see how a real target would react in combat. They were assured that their qualification scores would not be harmed by the results of the tactical training block but they should try to do their best. This approach was used by the instructors while the observations were made and has been considered to be representative of what the instructors have been telling each TOW and Improved TOW Vehicle (ITV) class participating in the training.

DATA COLLECTION

Questionnaire

A 22 item questionnaire was developed from information and observations obtained at Lee Field and through discussion with TOW instructors and DOTD, USAIS, personnel(see Appendix). The intent of the questionnaire was to identify the perceptions of the students with regard to the block of instruction and to determine whether they thought that the tactical training had any meaning. The questionnaire had forced choice and open ended items which addressed ITG concerns and allowed the students to suggest changes which might improve not only the tactical simulation training but the entire TOW gunnery course.

Sample

A total of 58 students representing two different TOW training classes were administered the questionnaire and interviewed for comments about the perceived value of the tactical simulation training. The students appeared to be representative of those usually assigned for training and their qualification

scores indicated that they were relatively typical of those being trained. None of the students sampled represented ITV training, only ground mounted TOW training. Five instructors completed the questionnaire as well.

Results

The questionnaire in the appendix presents the mean responses of the students and the instructors for each item. Not all respondents completed every item, particularly in the section of the questionnaire which asked for answers to be filled in. Negative responses are noted by the items in the appendix. The responses from the instructors, since there were only five, may not reflect a clear picture of their perceptions and at times will reflect a different attitude toward the tactical engagement simulation training. Means are presented for respones from all five instructors, as well as from four. One instructor responded quite negatively to everything and with such a small sample his responses added a great deal of weight to the outcome. Discussion with the instructors led to the decision to present both instructor means in order to show a more balanced presentation of attitudes.

The student gunners reported feeling confident (Mean=3.91) about tracking skills learned before they completed qualification firing and even more so afterward (4.50). In comparing confidence attained while using the target board during training and later the tactical vehicle, it in fact increased (4.07 to 4.35). The students agreed that as training got harder, their performances got better (4.10) and that the tactical simulation training enhanced their confidence as gunners even a bit more than did prequalification tracking (4.54 over 4.40). They agreed that the engagement simulation gave an idea of how well they could perform on the battlefield (4.28) and that they were leaving training with a strong sense of accomplishment (4.66). They agreed that the MILES equipment used in training was good and that they could operate it without much trouble (4.02 and 4.11). They also felt that the instructors had prepared them for the tactical engagement simulation period (4.22) and that it added to training (4.26).

Instructor responses to these statements related to confidence gained through training paralleled those of the gunnery students for the most part, however, the responses usually appeared slightly less forceful (See Appendix). Differences in attitudes toward training appeared in the second part of the questionnaire which asked the individual respondent to identify changes which they felt would improve training. The majority of the students completing training would have added to the tactical training period rather than training in other ways (70.69%), while the instructors instead would have used the time otherwise (60.00%) or would have left training as it existed (40.00%). In a similar question which offered the option to skip the tactical training, extend it, or leave the training as is, the students clearly would have wanted to extend training (81.04%) while the instructors split in favor of skipping it (40.00%) or leaving it as is (40.00%). Both sampled groups agreed that the training did not need to be made either easier or harder (Students 75.86%, Instructors 80.00%).

The last part of the questionnaire offered the opportunity for the respondents to express themselves openly to a variety of issues regarding the training. The majority of the student gunners who answered the question responded positively toward the tactical engagement simulation trainir; (79.31%). Some wanted more practical training like it and only two said that

the use of MILES equipment was not useful. The instructors saw the use of MILES equipment as secondary to exposure to a tactical vehicle which behaved in a manner that could be expected in combat.

The students were split in recalling what the instructor(s) said about the tactical training with many recalling the instuctor saying simply that the period would build confidence, provide an opportunity to become better gunners, allow the experience of combat engagement, or it simply would be a good exercise (44.83%). The majority either did not recall anything being said or that very little information was given (55.17%).

In addressing possible additions and deletions regarding the program of instruction for TOW training the majority of student comments were positive with very few recommendations for deletion. A few students identified training with MOP gear, equipment unloading (from transport), noise simulators, and some instructors as being more bother than benefit. They would add to all phases of training, particularly in those aspects of training which would enhance tactical engagement simulation (32 responses). This is in contrast to the four of five instructors who responded that they would drop tactical engagement training. These instructors stated that the use of the MILES equipment, and the related tactical training was fine, but should be conducted at the unit level. The time available for training in OSUT should be used to prepare the students for qualification. In other words, if more time is indeed available, it should be used to enhance prequalification performances.

Question 27 asked for determination of success in tracking by range during the exercises. The limited response indicated that the students did not know much about the range to the targets. It also indicated that the question might well have been difficult to interpret. An instructor responded that Lee Range was the only one used for training. The intent of the question appears to have been lost.

The majority of the students (86.21%) and the instructors (60.00%) would have liked a greater variety of target types presented under additional conditions. Longer range targets, faster targets, and multiple targets which required priority engagement decisions were desired. It was understood that these additions would have required a greater amount of training time to be used in TOW training. A total of 87.93 percent of the students responded that they will be better TOW gunners because of the tactical training received at the end of the TOW course. This block of instruction built confidence, provided realistic training, and a greater understanding of the role of the anitarmor gunner was achieved. A small minority were disturbed by not having complete confidence in their ability to use the MILES equipment (3.45%). They were not comfortable about installing and using the equipment without more training and assistance.

A total of 82.76 percent of the students who responded expressed comfort with regard to tracking using the night sight for the TOW. They would, for the most part, like more actual night training but they would like the schedule changed to permit a shorter training day when it would include night training. Of the three instructors who responded, two would have liked to see more night training as well.

All five instructors felt that the tactical engagement simulation would be more difficult to conduct at night while 70.69 percent of the students felt that it would not. The instructors have to consider safety and control problems as

well as training while the students need only be concerned with the content of the training itself. The divergence of concern on this issue was clear in the responses from those sampled. The students thought that it would be as easy to conduct tactical engagement exercises at night as it would be during daylight hours. They also indicated that the practice would be a positive addition to the TOW training program.

DISCUSSION

There is divergence between the students and the instructors regarding the value of the tactical engagement simulation period of instruction. The students, in part, see this period as a change from the routine training and responded positively to its unique characteristics. They also reported through questionnaire and interview responses that they felt confident that the tactical training contributed to their being better TOW gunners by providing them with exposure to target engagement opportunities which they will have in future field exercises with their assigned units, and in combat if necessary. They emphasized in their comments the importance of confidence built during the tactical engagement training and supported this by recommending that this type of instruction be expanded by either replacing some of the other TOW subjects or by adding time to the length of the TOW training program for OSUT.

The apparent lack of enthusiasm for the tactical engagement training on the part of the instructors can be clearly attributed to their concerns regarding TOW qualification requirements. They see training time available which could be used prior to qualification testing. By using the time to train basic tracking skills it is felt that the student gunners could obtain higher scores during the examination phase. In some cases this means that a student would qualify where he presently does not and that other gunners would obtain higher qualification scores. Since qualification and the scores associated with it are considered important indicators to commanders, not only to report the demonstrated ability of the student gunner, but to measure the effectiveness of the training they have received and therefore the effectiveness of the instructors, those responsible are concerned that training must appear successful. This is not a negative comment, but simply a statement of fact regarding the concerns of those charged with training. The appearance of quality training is often observed to be as important as good quality which might be difficult to measure. In short, the instructors are sensitive to the indicated measures of performance which are used to quantify successful training.

The comments from the instructors reflected a general dislike for the use of MILES equipment and tactical engagement training in the OSUT environment. They did say that the use of MILES, from their experience, was a very worthwhile way to train at the unit level (battalion and below). The underlying concern that they had, as expressed above, was for time lost which could be used to improve qualification scores and to qualify some students who failed to meet the standards.

Observations of the students engaged in target acquisition and tracking indicated that their responses to questionnaire items were relatively accurate portrayals of their experiences. They were enthusiastic about the tactical period of instruction but recognized the shortcomings of the MILES equipment

being used. They clearly did not score as many recorded hits using the MILES equipment as they felt they had achieved. This was not a real problem with any of them since they had all qualified before being sent to this additional training.

It remains uncertain as to whether those students who did not qualify during TOW training would do so by using the additional amount of training time which is currently available and is devoted to tactical engagement simulation training. Surely not all would qualify. The value of the tactical training is recognized by those students who have had the opportunity to participate in it. They enjoyed the change of pace and the opportunity to experience engaging a tactical vehicle, even a friendly personnel carrier, under simulated combat conditions. Exposure to this type of training has given these student gunners some insight into the combat tasks before them that they would not have at least until they reached a unit. It is possible that they would not receive the same quality of training experience, certainly not with the same consistency, in many units.

RECOMMENDATIONS AND CONCLUSIONS

Consideration should be given to removing some of the fear on the part of the instructors that failure by poor students means poor instruction. This must be a matter of individual consideration. If this point can be made, there would be less resistance to the tactical engagement simulation training on the part of the instructors.

Observations, questionnaires, and interviews suggest that the students see some very positive gains by their having had the opportunity to train against tactical targets. The period of instruction is relatively inexpensive to conduct and should remain a part of the overall program of instruction for OSUT TOW training.

An examination of records from past TOW classes, which have been given additional traditional tracking practice, might show whether the same amount of time now spent on tactical engagement simulation training would be better used to reduce failures. However, rather than sending unqualified students away on the last day of training, which is now reserved for tactical training, it might be possible to provide additional tracking training for qualification. Those students who are qualified would move to tactical training while the few who are not qualified would continue a remedial tracking program. The opportunity to adopt this proposal would be resource dependent like the tactical tracking training itself.

In order to develop a more detailed analysis of the quality of the tactical engagement simulation block of instruction, and to answer some of the questions and issues raised by this report and by the past Commanding General, USAIS&C, it is recommended that the ITC request formal support through DOTD, USAIS, to outline and plan a training effectiveness analysis. Such questions related to the relative cost effectiveness of using faster combat vehicles, necessary terrain improvements, use of training time to increase the number of recorded qualified gunners, and a better measure of the effectiveness of tactical engagement training as seen by units receiving recently trained OSUT graduates could be addressed. The results of the present limited investigation suggest

that the tactical engagement simulation training is making a definite contribution to the quality of OSUT graduate who has been trained as a TOW gunner and therefore to his receiving unit's combat readiness. The soldier who has been exposed to tactical simulation in the institutional environment has a much better awareness of what to expect the first time he participates in field exercises with his unit, or if necessary, when he enters combat.

APPENDIX

TACTICAL ENGAGEMENT SIMULATION (TES) QUESTIONNAIRE RESULTS

The first 18 items used in the questionnaire for both students and instructors called for weighted responses using the following scale:

5 = Strongly Agree

4 = Agree

3 = Don't know or not sure

2 = Disagree

1 = Disagree Strongly

The mean response for students (N=58) and instructors (N=5) sampled using the questionnaire is presented with each question (1 to 18).

Responses
Student Instructor(One responded negatively to almost all items so two instructor Means are presented)

	Mean	Mean(5)	Mean(4)	
1.	3.91	3.23	3.75	I felt confident about tracking before qualification.
2.	4.50	4.00	4.75	I felt confident about tracking after qualification.
3.	4.07	3.40	4.00	I felt confident when tracking using the target board.
4.	4.35	3.60	4.25	I felt confident about tracking after today's tactical engagement simulation training.
5.	3.38	3.40	4.00	The bleacher talks during training helped me prepare to track targets.
6.	4.10	3.60	4.25	As training got harder, I got better at tracking.
7.	4.40	4.20	5.00	The tracking before qualification built my confidence as a gunner.
8.	4.54	4.00	4.75	Tracking training today helped me to be a better gunner.
9.	4.28	3.60	4.25	Tracking training today gave me an idea of what I can successfully do in combat as a gunner.

10. 4.67	4.00	4.75	After qualification, I think I can perform as a good gunner.
11. 4.00	3.40	4.00	I know after today's tactical engagement training that I can hit any target with a TOW.
12. 4.54	3.60	4.25	I know after today's tactical engagement training that I can hit most targets with a TOW.
13. 4.36	3.80	4.50	All the training during the course and qualification prepared me for today's engagement exercises.
14. 4.66	4.20	5.00	I will leave training with a feeling of accomplishment.
15. 4.02	3.40	4.00	After today's training I am confident that MILES equipment is good.
16. 4.11	3.20	3.75	After today's training I can operate MILES equipment without much trouble.
17. 4.26	3.60	4.25	While it was hard, today's tactical engagement simulation added to training.
18. 4.22	4.20	5.00	The instructor(s) prepared us well for today's tactical engagement simulation training.

Student Instructor Percentages

19. If I could I would:

70.69	0.	a. Add more tracking like today's TOW training.
6.90	60.00	b. Skip today's tactical engagement training and use the time in some other way.
22.41	40.00	c. Leave today's training just like it is.

20. If I could, I would:

20.69	20.00	a. Make today's tactical engagement training harder.
3.45	0	b. Make today's tactical engagement training easier.
75.86	80.00	c. Leave today's training just like it is.

21. If I could, I would:

1.72	40.00	a. Skip today's training.
81.04	20.00	b. Extend, or expand, today's training.
17.24	40.00	c. Keep things the way they are.

Questions 22 through 32 call for the respondent to fill in the blanks. Not all respondents to the questionnaire completed each item. The predominant and frequent responses have been addressed in the body of the report, however, summary percentages of positive and negative responses will be listed with the items.

Student Instructor Percentages (Based on the entire samples)

22. What did today's training mean to you as a TOW gunner?

79.31	40.00	Positive
15.52	0	Neutral
5.17	20.00	Negative

23. What did the instructor say it would mean?

44 83	20.00	Positive
55.17	0.	Neutral/No information given

24.& 25. What would you drop/add from/to TOW training?

74.14	40.00	Positive-Students would add more tactical training, instructors would add prequalification training.
15.52	80.00	Negative-Students would change schedule to shorten training days, instructors would drop MILES tactical training.

26. In your own words, what do you think about today's engagement simulation training?

81.04	20.00	Positive
10.35	0.	Neutral
8.62	20.00	Negative

27. At what ranges during tracking today did you have the most success?

Answers indicated that the intention of the question was not clear to the majority of respondents.

28. Would you like to see more different kinds of target conditions (vehicles, speeds, movements, firing conditions) than you did today?

86.21	60.00	Positive
13.79	40.00	Negative

29. Do you think you will be a better gunner because of today's tactical engagement simulation training? Why?

87.93	60.00	Positive
8.62	0.	Neutral
3.45	40.00	Negative

30. Do you feel comfortable tracking with the night sight for the TOW? Why?

82.76	60.00	Positive
13.79	0.	Neutral
3.45	40.00	Negative

31. Would you like more or less night training? Why?

79.31	40.00	More
5.17	40.00	Same, or blank
51.52	20.00	Less

32. Do you think that today's tactical engagement simulation training would be too difficult at night? Why?

15.52	100.00	More difficult-Need more room to maintain control and safety.
13.79	0.	About the same
70.69	0.	No more difficult